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**DETERMINANTS OF CAPITAL
STRUCTURE AMONG THE PUBLIC-LISTED
PLANTATION COMPANIES IN MALAYSIA**

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**MASTER OF SCIENCE (FINANCE)
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**DETERMINANTS OF CAPITAL STRUCTURE AMONG THE PUBLIC-
LISTED PLANTATION COMPANIES IN MALAYSIA**



**Thesis submitted to
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**Pusat Pengajian Ekonomi,
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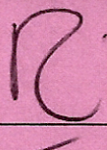
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ABSTRACT

Awareness of capital structure requires decision-making skills which refers to the art of tackling complex situations. Capital structure is a part of the financial structure and refers to the proportion of the various long-term sources of financing. The present study investigated the controlling determinants of the capital structure of a selected industry in Malaysia. The determinants to be investigated are, namely; the size, growth, leverage, liquidity, operating cash flow and return on assets which are the variables of the present study. The selected industry in Malaysia is the plantation industry. The data was collected from 40 public-listed plantation companies, using secondary data from the companies' annual financial reports. The statistical test conducted on the data gathered shows that there are no significant relationships between three of the variables tested, namely; size, leverage and OCF and the dependent variable; return on asset. However, the results also indicated that there are significant relationships between the growth of the companies and liquidity value in the companies with the return on asset of the companies. This study discovered that out of the five variables, there are two variables, namely growth and liquidity which significantly influences the capital structure of public-listed companies in the plantation sector in Malaysia.

Abstrak

Kesedaran mengenai struktur modal bergantung kepada kecekapan untuk menghasilkan keputusan dan juga dianggap sebagai satu kemahiran menangani situasi yang rumit. Struktur modal adalah sebahagian daripada struktur kewangan dan merujuk kepada perkadaran pelbagai sumber pembiayaan jangka panjang. Kajian ini menyiasat penentu pengawalan struktur modal industri terpilih di Malaysia. Penentu yang dikaji, iaitu; saiz, pertumbuhan, penyungkitan, kecairan dana, aliran tunai operasi dan pulangan ke atas aset merupakan pembolehubah kajian ini. Sektor Industri yang dipilih di Malaysia adalah industri perladangan. Data telah dikumpulkan daripada 40 syarikat perladangan awam yang tersenarai dengan menggunakan data sekunder dari laporan kewangan tahunan syarikat. Ujian statistik yang dilakukan pada data yang dikumpulkan menunjukkan bahawa tidak terdapat hubungan yang ketara antara tiga pembolehubah yang diuji, iaitu; saiz, penyungkitan dan OCF dan pemboleh ubah yang bergantung; pulangan atas aset. Walau bagaimanapun, hasilnya juga menunjukkan bahawa terdapat hubungan yang ketara antara pertumbuhan syarikat dan nilai kecairan dana dalam syarikat dengan pulangan aset syarikat. Kajian ini mendapati bahawa daripada lima pembolehubah, terdapat dua pembolehubah, iaitu pertumbuhan dan kecairan dana yang mempengaruhi struktur modal syarikat awam yang tersenarai dalam sektor perladangan di Malaysia.

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LIST OF ABBREVIATION

BURSA	Bursa Malaysia
CR	Current Ratio
DR	Debt Ratio
GDP	Gross Domestic Product
GRET	Gnu Regression, Econometrics and Time-Series Library
KLSE	Kuala Lumpur Stock Exchange
MM	Modigliani-Miller theorem
OCF	Operating Cash Flow
REVENUE	Sales Revenue
ROA	Return On Assets
SME	Small Medium Enterprise
SIZE	Firm Size
TA	Total Assets

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In any business, it is necessary to consider an array of relevant factors that determine the success and the development of the business. In today's competitive business world, business owners are often cautious of the challenges that lies ahead of their business activities. This includes being aware of the financial situations and capital structures of their business. Capital structure is component of the economic structure and relates to the fraction of the multiple long-term funding sources. It is associated by providing the range of funds sources in a right manner, which is in comparative magnitude and ratio. A company's capital structure consists of debt and equity securities that constitute the funding of its assets by a firm.

Awareness of capital structure requires decision-making skills which refers to the art of tackling complex situations. According to Muneer & Rehman (2012) and Jahanzeb et al. (2012), decision making, which affects the selections of alternatives among many possible alternatives is a cognitive process. The ability to decide on the right alternative requires the decision maker to determine some possible substitutes to what has already been applied into the financial structure of the business. Having this ability, encourages the managers or business owners to target certain measures on how to exploit the

overall value of the business.

Capital structure relates to how a business decides to sustain its investments and assets by some balance of debt, equity or internal funds. It is in a company's best interest to discover the ideal debt-to-equity ratio to decrease their insolvency risk, stay successful and eventually stay or become lucrative.

A company's capital structure relies on several determinants such as growth of the company, leverage or trading on equity, nature and size of business, flexibility of capital structure, the idea of retaining control, cost of floatation of new securities, requirements of investors, corporate tax rate, timing of issue and the legal requirements. It is impossible to rank these determinants since all such determinants are of distinct importance and the impact of specific determinants of a company change over time.

The present study investigated the controlling determinants of the capital structure of a selected industry in Malaysia. The determinants to be investigated are, namely; the size, growth, leverage, liquidity, operating cash flow and return on assets which are the variables of the present study. The selected industry in Malaysia is the plantation industry. The next section discusses the background of the present study highlighting some of the micro and macro factors contributing to the success of an industry.

1.2 Capital Structure

The capital structure of a company is subjective to the stability and growth of its sales (Md-Yusuf, Yunus and Supaat, 2013; Harris and Raviv, 1991; Modigliani and Miller, 1958). If a company's sales are anticipated to stay relatively stable, a greater amount of debt can be raised. Sales stability guarantees the company faces no trouble in fulfilling its fixed interest payment and debt repayment obligations. Likewise, the rate of sales progress also impacts the decision on the capital structure.

There is a cost to every dollar invested in a business. Capital cost refers to its suppliers' minimum expected return. The expected return will depend on the level of risk that investors are implying. Shareholders assume a high level of risk compared to debt holders. The minimum cost of capital should be provided by the capital structure (Modigliani and Miller, 1958). Evaluating the cost of different funding sources is a complicated subject and requires distinct intervention. Apparently, minimizing capital costs is beneficial. It is therefore necessary to prefer cheaper sources, and concurrently maintaining other conditions. A company's primary sources of financing are debt capital, preference share capital and equity share capital (Fan, Titman and Twite, 2012).

The return that the capital provider expects relies on the risk that they have to bear. The dividend rate is not fixed for shareholders and the Board of Directors does not have a legal duty to pay dividends even if the business made the earnings.

The debt-holders' loan is repaid within a specified period, whereas shareholders can only repay their assets if the business is liquidated (Md-Yusuf, Yunus and Supaat, 2013). This supports the notion that debt is a less expensive form of resources than equity. Tax deductions on the interest rates further lowers the debt expense. Share capital preferences are cheaper than equity capital, but they are not as inexpensive as debt. A business should therefore acquire sufficient debt in order to reduce the general cost of capital.

Conservation is one of the characteristics of an unwavering capital structure. Conservation does not indicate no debt or a small debt load (Myers, 2001). Conservatism is related to the assessment of the liability for fixed charges, created by the use of debt or preference capital in the capital structure in the context of the firm's ability to generate cash to meet these fixed charges. The fixed charges of a company include payment of interest, preference dividend and principal. The amount of fixed charges will be high if the company employs a large amount of debt or preference capital. Whenever a company thinks of raising additional debt, it should analyse its expected future cash flows to meet the fixed charges.

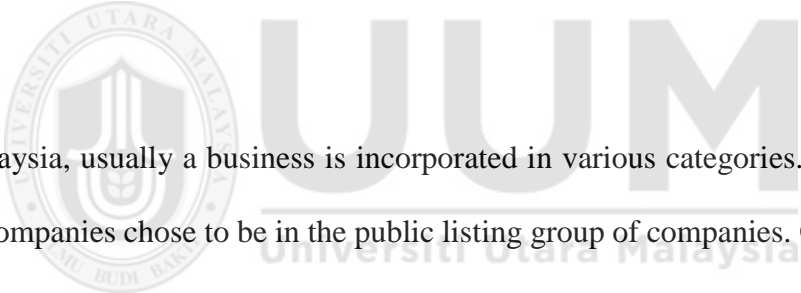
Paying interest and returning the principal amount of debt is obligatory. A business capable of generating stable and bigger cash inflows can accommodate more debt into its capital structure than a business generating unstable and lower cash inflows (Fan, Titman and Twite, 2012). Debt involves the load of fixed charge due to fixed interest

and principal payments (Fan, Titman and Twite, 2012). If a company intends to acquire extra resources, it should estimate its future income inflows to assure that fixed charges are covered. Size and nature of a company also influence its capital structure (Brannhult and Roos, 2016). In comparison to other production sectors all public utilities have differing capital structure.

Because of the stability and regularity of their incomes, public utilities may employ more debt. Conversely, a concern that, due to the nature of its business cannot provide stable income will have to depend primarily on equity capital. A company's size also has a major impact on the accessibility of resources from various sources. It can often be hard for a small business to raise long-term loans. If it manages to acquire a long-term loan somehow, it will be accessible at a high interest rate and on inconvenient terms.

Small companies' extremely restrictive loan contracts make their capital structure quite inflexible. The management is therefore unable to operate the company effectively. Small businesses therefore have to rely on owned capital and dividends for their long-term funds. In developing its capital structure, well established companies have higher flexibility. It can easily acquire loans and can also issue regular shares, preferential shares and debentures in public. In planning the capital structure, a company should make the best use of its size. This is important to determine and to sustain the marketability of the products produced.

Marketability is the company's capacity to sell or market a specific form of safety over a certain period of time, which in turn depends on the investors' willingness to purchase that safety (Shubita and Alsawalhah, 2012). Marketability might not have a major impact on the original capital structure, but it is essential to consider when deciding on the suitable timing of security concerns. The market may favour debenture problems at one moment and it can easily accept ordinary share issues at another moment. The company has to decide whether to raise funds through debt or common shares due to the evolving market situations. The company should not issue ordinary shares if the share market is depressed, but issue debt and wait to issue ordinary shares until the share market revives. It may not be possible for the company to issue debentures effectively during the boom period on the share market.



In Malaysia, usually a business is incorporated in various categories. Among others, most companies chose to be in the public listing group of companies. Generally, there are many types of public listed companies in Malaysia, including blue chip companies and companies registered in Bursa Malaysia (Razak, Ahmad and Aliahmed, 2008).

In the Main Market of Bursa Malaysia, stocks are commonly grouped together among categories to offer better efficiency for investors in understanding what they are trading at. In the past, MESDAQ was meant for technology stocks while there were the Main and Second Markets. Within the Main Market, the former markets are combined. Hence, categorizing the stocks will make it a lot easier. This includes:

- i) Construction – Counters like AZRB, Gamuda, Ho Hup, Melati, Zecon
Consumer Products – includes counters like Apollo, BAT, F&N, Hwa
Tai, Spritzer, UMW
- ii) Industrial – Counters like AISB, BSL Corp, Kian Joo, Melewar,
Seacera
- iii) Finance – Counters in this sector include Allianz, Bursa, CIMB, Insas,
Maybank, MBSB, Takaful
- iv) Plantations – Counters include Chintech, Far East and TDM
- v) Technology – Includes counters like Binacom, Elsoft, Mesiniaga
- vi) Properties – Bertam, E&O, Guoco, Mahsing, Malton
- vii) Hotels – Landmark and Shangri-La are among the counters in this
category and others

1.3 Plantation Sector

The incomes of plantation companies in Malaysia were expected to recuperate in the second half of 2018 subsequently after the sector took a hit in the last quarter of the year (as reported in The STAR Online dated 11th September 2018). The outcomes of most local plantation companies were mostly down in the second quarter of 2018 due to the triple-whammy of low crude palm oil (CPO) prices, low output and high cost of production (The STAR Online, 11 September, 2018). It further stated “compared with their regional peers who delivered decent results, Malaysian plantation companies lagged behind in terms of financial results”.

According to Maybank Investment Bank Research, out of the 10 plantation stocks under its coverage, only 20% was in line while the rest fell short of the second quarter of 2018 result expectations. The core profit of plantation stocks under its coverage was down 36% year-on-year (y-o-y) and fell 24% quarter-on-quarter (q-o-q) for Q2, 2018. It has also dropped 36% y-o-y for the first half 2018, said the research unit in its sector report (The STAR Online, 11 September 2018).

On the other hand, MIDF Research maintained a positive view on the sector, with Kuala Lumpur Kepong Bhd and Genting Plantations Bhd as its top picks, with a target price of RM28.50 and RM12 respectively. In 2017, the European Parliament went to vote to amend the EU Renewable Energy Directive, which did not specifically ban or restrict the use of palm-based biofuels, but applied new criteria for crops used for the production. As such, this resulted in the capping of palm-based biofuel consumption in the EU at 2019's level until 2023, and later, completely eliminated by 2030.

According to HLIB Research, Malaysia and Indonesia view the EU's move as discriminatory due to the lack of scientific data and reliable information used in classifying palm oil production as a high "Indirect Land Use Change" risk biofuel feedstock. Both Malaysia and Indonesia went on a joint mission to Brussels, Belgium, to express their concerns to the EU leaders and find a solution for all parties involved. According to HLIB Research's and Oil World data, Indonesia owns 56% share of world's palm oil production, while Malaysia and other countries own 28% and 16%

respectively.

1.4 Problem Statement

The plantation sector was chosen as the framework of the present study because under the Malaysian Economic Transformation Program (ETP), it provides a significant contribution to financial development (Tan, 2011). Palm oil export is one of Malaysia's major contributing factors to today's economy, adding up to RM 1,889 trillion (8%) of the country's GNI per capital (PEMANDU, 2010). On the other hand, the rubber sector only added RM18.5 billion in 2009 to the GNI of the country; it is the second major commodity crop after oil palm (PEMANDU, 2010). The plantation sector is therefore chosen as the focus of this research in terms of its future potential development in Malaysia.

According to reports in The STAR Online, dated back in 2018, Malaysian plantation sector is recuperating due to economic setbacks. It is therefore necessary to highlight the year-to-year progressions shown in the financial reports of the companies under the plantation sector. Isolated studies have been conducted to show various elements of capital structures of companies in other sectors such as electronic and electrical industries. However, studies on the determinants of the capital structures of companies in the plantation sector are scarce and requires further research.

One similar study was conducted by Md-Yusuf, Yunus and Supaat (2013). In their study, the researchers investigated the capital structure of Malaysian electronic and electrical industries which are disclosed in the Bursa Saham Malaysia. However, their study focused on factors that have been found to be the dominating determinants of the capital structure of these companies. The factors investigated included profitability, company size, growth, asset tangibility and liquidity. The results of this evaluation indicated that profitability, company size, growth opportunities and assets tangibility have a favorable connection with debt ratio. From the findings, liquidity was identified to have an adverse impact on the company's debt ratio. Compared to their study, the present study tends to examine the overall impact of the determinants of the capitals structures of the companies towards the return on asset of the companies. There is a fundamental gap in studies conducted on the impact of size, growth, leverage, liquidity and operating cash flow on the return on asset especially in the plantation sector.

A much general study was conducted by Salim & Yadav (2012), looking into the correlation between firm performance and capital structure among 237 Malaysian listed companies during the period of 1995 till 2011. The industries investigated included consumer product, construction, industrial product, property, plantation, trading and services. This particular study used four capital structure measures; short term debt, long term debt, growth and total debt ratios, as independent variables, and firm size as the dependent variable. Overall findings reported that the firm's

performance as having an adverse affiliation with the firm's size whereas short term debt, long term debt, growth and total debt ratios as having positive impact on the output of the company. On the contrary to this review, the present study is a more dedicated study, in terms of investigating the influencing factors and the association between selected variables with the performance of a company in a specific sector which is the plantation sector. The present study is also a time-framed study, with data gathered over the duration of 5 years from 2014 to 2018 focusing on the determinants of the capital structures of the companies. However, the gap is filled by conducting a cross-sectional regression analysis for the duration.

The above studies have significant implications on the performance of firms with regards to capital structure. However, there is a dearth of studies that focuses particularly on the determinants of capital structure in the plantation sector in Malaysian public listed companies. The literature suggests that there is an optimal capital structure, however there is no specific methodology to ensure the relationship between the determinants of the capital structure in a selected sector supporting the claim made by Salim and Yadav (2012).

This present study has been motivated by a lack of consensus regarding what might be called an optimal capital structure for services and the production industry. Most the theories underpinning capital structure are not exclusive (Cotei & Farhat, 2009; Huang & Titter, 2009, Leary & Robert, 2010) leaving sufficient room for further studies. The

present study aims to fill this gap by examining the core determinants of capital structure of a particular industry in Malaysia, namely in the plantation industry.

A broader knowledge of the problems involved needs an evaluation of the notion of capital structure and its impact on the planting sector. It is crucial to recognize the dominating determinants of the capital structure of the companies in the plantation sector in order to understand the economic growth of the companies. The concern is that inability to identify the average cost of external resources will prompt firms to take inadequately responsive choices on capital budgeting. It has to embark on value-adding initiatives for a business to develop; therefore, it is essential to have efficient capital budgeting. One way to improve the efficiency of the capital budgeting method is to predict cash flows from the initiatives and the price of their capital structure. If a company doesn't have a clear vision of what the dominant capital structure is on the market, it won't have a good sense of what the appropriate external capital cost, whether debt or equity, should be. Although many research on capital structure have been conducted, the majority of these research concentrated on developed capital markets.

The literature on capital structure and its effect on firm performance is still very thin in the Malaysian plantation context. Most of the studies conducted did not look into the determinants of the capital structure of the plantation sector. The lack of such studies has provided a need for an inquiry into the determinants of capital structure of

the palm oil plantations. The present study will be conducted to examine the influencing determinants of the capital structure of the selected plantation companies in Malaysia and highlight the dominating determinants of the capital structure.

1.5 Research Questions

1. Is there any significant relationship between size and return on asset in the public-listed plantation companies in Malaysia?
2. Is there any significant relationship between growth in revenue and return on asset in the public-listed plantation companies in Malaysia?
3. Is there any significant relationship between leverage of debt ratio and return on asset in the public-listed plantation companies in Malaysia?
4. Is there any significant relationship between liquidity of current ratio and return on asset in the public-listed plantation companies in Malaysia?
5. Is there any significant relationship between operating cash flow ratio and return on asset in the public-listed plantation companies in Malaysia?

1.6 Research Objectives

The research objectives of the study have been established to determine variables affecting the profitability in the public-listed companies in Malaysia for a period of five years from 2014 to 2018. Based on the research questions, the research objectives of the present study are developed as follows:

1. To examine the relationship between firm size and return on asset in the public-listed plantation companies in Malaysia.
2. To examine the relationship between growth in revenue and return on asset in the public-listed plantation companies in Malaysia.
3. To examine the relationship between leverage of debt ratio and return on asset in the public-listed plantation companies in Malaysia.
4. To examine the relationship between liquidity of current ratio and return on asset in the public-listed plantation companies in Malaysia.
5. To examine the relationship between operating cash flow ratio and return on asset in the public-listed plantation companies in Malaysia.

1.7 Significance of the Study

Once the research objectives are achieved and the research questions answered, the findings of the present study will contribute significantly to the understanding of the economic growth among the public-listed plantation companies in Malaysia. Specifically, the findings will contribute in terms of recognising the effective determinants of the capital structure of the plantation sector, generally and the selected public-listed companies, specifically.

Limited studies are conducted in the context of Malaysian plantation sector to determine the contributing factors that affect the economic and financial growth of the companies. It is therefore necessary to conduct the present study in order to understand

and identify the determinants of the capital structure in the plantation sector in Malaysian public listed companies.

The findings of the present study aim to extend related literature on determinants of capital structure of the public-listed plantation companies. Although many studies have been conducted on determinants of profitability of Malaysian companies, studies looking specifically at the relationship of firm size, growth, leverage, liquidity and operating cash flow with return on asset are scarce in the Malaysian context.

Among the few studies conducted in Malaysia, Lee's study (2018) which investigated the relationship between four determinants of capital structure, namely; liquidity, leverage, size and profitability, found that only "firm size significantly influences the profitability of property and construction sectors in Malaysia" (Lee, 2018: 61). Another study looked into the performance of consumer companies (Ismail, Yabai and Low, 2014). Using the qualitative method of data analysis, the study investigated the contributing determinants contributing to the performances of consumer companies. On the other hand, Zaid, Ibrahim and Zulqernain (2014) investigated external variables such as GDP, term premium and inflation for companies listed in Bursa Malaysia.

Significantly, the studies mentioned above suggested for further investigations into determinants of variables in various different sectors, using data from longer periods

of time and from more recent years. Therefore, the present study was conducted using data from years 2014 till 2018. And since the findings of previous studies were rather mixed and were generalised among the determinants, the present study tends to enhance the works of other scholars and look into specific variables such as firm size, growth, leverage, liquidity, cash flow ratio and return on asset.

1.8 The Scope of the Study

The present study is conducted within a specific time-frame which is represented by the data collected from the financial annual reports ranging from year 2014 to 2018. Data from these reports was extracted to form the basis of the cross-sectional regression analysis of the independent variables of the study, namely; size, growth, leverage, liquidity and the operating cash flow of the companies, and the dependent variable which is the return on asset of the companies over the period of 2014 till 2018.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this study, the second chapter begins with an introduction to the related theories, revealing several definitions of the theories, supporting with explanations and definitions, in addition to that, a discussion will be carried out on its related norms. The chapter moves on to discuss the related literature on determinants of capital structures followed by the research framework and the hypotheses of the present study.

2.2 Theoretical Framework

This section provides an overview of the underpinning theories of the study beginning with an elaboration on the theory of capital structure, followed by the trade-off theory, pecking order theory and market timing theory.

2.2.1 The Theory of Capital Structure

Capital structure choices can have significant consequences for the company's value and capital cost (Firer et al, 2008). Inadequate choices on capital structure can result in big capital costs reducing the net present value (NPV) of the equity plans of the firm

making the investment initiatives unsuitable, such as the underinvestment issue. Efficient choices on capital structure will reduce the company's capital cost and boost the NPV of the company's equity activities, resulting in several projects being ideal to adapt and thus increasing the company's value.

The capital structure scheme was initiated by Modigliani and Miller (1958). Modigliani and Miller (1958) stated in their research that the capital structure was meaningless to a company's valuation. There are various theories and research on the impact of capital structure on a firm's profitability, size and value. The company's capital structure refers to the financing sources used to finance the operations of a company. This refers to the preference between debt financing and equity financing.

The valuation of a company, i.e. its stock price, does not rely on the capital structure of the company, according to Modigliani and Miller (1958). This theory is centered on a number of simple observations by Modigliani and Miller. No taxes, no transaction cost or asymmetry of data are included in those observations. The theory suggests that the overall market valuation of all financial resources held by a firm is determined by the risk and return of the actual property of the firm, not by the combination of securities offered (Byström, 2007).

The main idea behind Modigliani and Miller's theory is that a rational investor can

create any capital structure on his/her own. Therefore, the firm should not focus much on its capital structure. The present study is situated within this belief. This study will attempt to highlight the indication provided by Modigliani and Miller's theory of capital structure and seek to validate it.

The present study belief that if the investor is highly indebted, the risk and return of the firm's stock (to the investor) will simply be the same as if the firm was highly levered (Byström, 2007). This substitution called homemade leverage and the finding that a more leveraged firm does not only yield higher returns to the investor but also a higher risk, is the crux of Modigliani and Miller's theory.

Capital structure is a very significant decision for companies to make so that they can maximize returns to their various stakeholders. Furthermore, the correct capital structure is important to the firm as it will aid in dealing with the competitive environment within which the firm operates. According to Modigliani and Miller (1958) an 'optimal' capital structure exists when the risks of going bankrupt is offset by the tax savings of debt. When this optimal capital structure is realised, a company would be able to maximise returns to its stakeholders that are higher than returns that would be attained from a company whose capital consists of equity only, for example, an all equity firm.

Despite the importance that capital structure can play in adding value to the firm, decades' worth of theoretical literature and empirical testing have not been able to give guidance to practitioners with regards to the choice between debt and equity in their capital structures (Frank & Goyal, 2009). It is rather baffling to try to logically understand capital structure literature because different capital structure theories are frequently utterly opposed in their predictions while sometimes, they may be in agreement but have opposing views about why the outcome has been predicted. It is for this reason that Myers (2001) stated that there is no universal theory of capital structure, only conditional ones.

Factors that are of significance in one context may be of substantial insignificance in another. Other theories on capital structure include the pecking order theory and the market timing theory.

2.2.2 Trade-Off Theory

Modigliani and Miller (1963) delivered a correction of their 1958 seminal paper and stated that “The deduction of interest in computing taxable corporate profits will prevent the arbitrage process from making the value of all companies in a given class proportional to the expected returns generated by their physical assets” (Modigliani & Miller, 1963). The correction restated the Proposition 1 equation to be expressed as (Firer et al, 2008):

Where:

V_L = the value of the levered firm

V_U = the value of the unlevered firm

T_C = the corporate tax rate

D = the amount of debt

The above expression states that the value of the levered firm (V_L) is equal to the value of the unlevered firm (V_U) plus the present value of the interest tax shield (Firr et al, 2008). The principal value of debt is the fact that interest payments earned on the repayment of debt is deductible from corporate income tax. Debt, however, does have shortcomings that include an increased probability of bankruptcy if the firm failed to service its obligations, the agency costs earned by the lender to monitor the activities of the firm and the fact that managers have better prospects of the firm than the investors do (Gitman, 2003).

The trade-off theory rationalises reasonable debt ratios. It says that the firm will borrow up to the point where the marginal value of tax shields on additional debt is just offset by the increase in the present value of possible costs of financial distress (Myers, 2001).

According to Fama and French (2005) this optimal capital structure is attained when the marginal benefit of an extra unit of debt is offset by the marginal cost of an extra unit of debt. Meyers (2001) also states that, a value-maximizing firm should never pass up interest tax shields when the probability of financial distress is remotely low. As according to Gitman (2003) it is widely accepted that the value of the firm is maximised when its cost of capital is minimised.

The present study intends to investigate the relationship of profitability with the firm's performance which will be highly influenced by the financial distress occurring in the company's capital structure. The present study is based within the margins of the trade-off theory since one of the dependent variables of the study is profitability.

2.2.3 Pecking Order Theory

According to the pecking order theory companies prefer internal finance and if external finance is required, companies issue the safest security first. That is, they start with debt, then possibly hybrid securities then equity as a last resort (Myers, 1984). This assumes that a firm's debt ratio will be reflective of its cumulative requirements for external finance.

In contrast to the trade -off and pecking order theories of capital structure, Baker and Wurgler (2002) found that companies with low levels of leverage raised capital when

their market valuations were high as measured by the market-to-book ratio whereas companies with high levels of leverage raised capital when their market valuations were low. This theory is known as the market timing capital structure theory and is highly related to the growth and firm's performance variables. The present study will use this theory to justify the findings related these two variables.

According to research by Kurshev and Strebulaev (2005), it has been established that large companies in the United States tend to have higher leverage ratios than smaller companies. International evidence suggests that in most, though not all countries, leverage is also cross-sectionally related to size. Intuitively, firm size should be relevant or related to leverage for a number of reasons. Firstly, in the presence of fixed costs of raising external funds, large companies have cheaper access to outside financing. Also, large companies are more likely to diversify their sources of financing.

Secondly, size may also be a proxy for the probability of default because it is often assumed that it is more difficult for larger companies to fail or liquidate. Firm size may also be a proxy for the volatility of firm assets because small companies are more likely to be growing companies in industries that are rapidly expanding and intrinsically volatile. Another reason for the significance of firm size is the extent of the wedge in the degree of information asymmetry between insiders and the capital markets which have a tendency to prefer larger companies by virtue of a greater

scrutiny they face from the ever – suspicious investors (Kurshev and Strebulaev, 2005).

2.2.4 Market Timing Theory

Equity market timing refers to the practice of issuing shares at a high price (when their valuations are higher relative to book value and past market valuations) and repurchasing them at low prices (when their market valuations are lower). As a result, observed capital structures are a function of the past market valuations of securities instead of a desire to attain an optimum capital structure or as a consequence of following a pecking order (Baker & Wurgler, 2002).

According to Baker and Wurgler (2002), four outcomes of their empirical studies support their market timing hypothesis, and they are as follows:

- a. An analysis of past financing decisions show that companies tend to issue equity instead of debt when their share price is higher relative to the book value and previous market values and they tend to repurchase the shares when their current market values are lower than past values
- b. Analyses of long-run stock returns following corporate finance decisions suggest that timing the equity market is successful for companies on average (Dreyer, 2010)

- c. Earnings forecasts and realisations around equity issues suggest that companies issue equity where there is investor market optimism about future earnings prospects (Dreyer, 2010)
- d. Two thirds of Chief Financial Officers (CFOs) admit to market timing in anonymous surveys (Dreyer, 2010)

Similar to Baker and Wurgler's (2002) analysis, it is hoped that the findings of the present study can be used to highlight the financial situation of the companies in the plantation industry in Malaysia. According to DeAngelo et al (2010) most companies with attractive market timing opportunities tend to fail to issue stock.

One probable reason for this failure to issue stock is the investor rationality that would influence the managers to disguise their attempts to sell overvalued stocks. Rational investors would almost instantly recognise any attempts to sell off overvalued stocks and as a result would reduce the price, they are willing to pay for the stock. As indicated by Baker and Wurgler (2002) one other explanation could be that managers are simply unable to time the market. This seems to resonate with the recent events where prominent financial institutions repurchased their shares at higher prices after the 2008 financial meltdown (DeAngelo, DeAngelo & Stulz, 2010).

According to Firer et al (2008), capital structure decisions can have important implications for the value of the firm and its cost of capital. Companies are, however,

generally at liberty to decide on any capital structure they wish to undertake since the capital structure decision can be made independently from the capital investment decision.

In this section, the three most predominant capital structure theories were reviewed, which are the trade-off theory, the pecking order theory and the market timing theory. According to Modigliani and Miller (1958), the value of the firm, that is, the stock price, does not depend on the capital structure of the firm. Based on a set of simplifying assumptions such as no taxes, no transaction costs and no information asymmetry, this theory indicates that the total market value of the financial instruments issued by a company is given by the risk and return of the real assets of the firm.

According to Firer et al, (2008) capital structure decisions can have important implications for the value of the firm and its cost of capital. Inadequate capital structure decisions can lead to a large cost of capital thereby lowering the net present value (NPV) of the firm's investment projects, making the investment projects unacceptable, for example the underinvestment problem.

2.3 Related Literature on Determinants of Capital Structure

Globally and locally, there have been a number of studies been conducted to examine the effect of determinants on capital structures of companies. The reviews of studies

are presented first, globally and then locally. These studies were reviewed based on the theoretical aspects, the methodologies used and the major findings.

Gwatidzo and Ojah (2009), one of the most encompassing studies that have been conducted on African markets including South Africa, found that companies in these markets tend to follow a modified pecking order. Their study looked at five African markets (Ghana, Kenya, Nigeria, South Africa and Zimbabwe) collectively. In their study, Gwatidzo and Ojah (2009) tested for capital structure dependence on variables such as asset tangibility, corporate tax, profitability, size and firm age.

In terms of Gwatidzo and Ojah's (2009) findings, sophisticated institutional and physical capital markets infrastructure have significant and consequences in South Africa. However, it is questionable whether are the legal environment encompassing sophisticated institutional and physical capital markets infrastructure are clearly stated and enforced laws and whether are the courts effective in forcing borrowers to honour business contracts. A number of studies have been recently carried out on the effect of capital structure on firm value from countries such as Australia, Pakistan, Bangladesh, China and Nigeria.

If capital rationing is a difficult challenge faced by management of companies, then it would perhaps be right to assume that funders such as shareholders (when equity is

offered) and the debt-providers (when debt is issued) are likely to be influenced by how they value a firm's capital structure in relation to the industry average capital structure at the time management goes out to the market for funding.

The Australian study looked at both debt and equity disclosures to observe and quantify value-enhancing and value-reducing capital structure changes of 10-50 per cent. The research design centred on the concept of relative capital structure by relating a firm's debt-equity ratio to that of the industry median in each year over a 13-year period (1991 – 2003). The findings from the study indicated that the market reacts positively to announcements of financing events that lead to the firm's capital structure moving closer to their relative industry median debt-equity ratio.

For companies changing the debt-equity ratios away from the median (value decreasing events) it lead to either less positive or negative abnormal returns. These are consistent with the idea of optimal capital structure, if relative capital structure is a proxy for optimal ratio. Thus, the market perceives the industry median as an appropriate capital structure benchmark in the Australian market (Oraluck & Mohamed, 2004).

In Pakistan, research examined the impact of capital structure on companies' financial performance in Pakistan of top 100 consecutive companies in Karachi Stock Exchange

for a period of four years from 2006 to 2009. Exponential generalized least square regression was used to test the relationship between capital structure and companies' financial performance (Muhammad et al, 2012).

The results showed that all the three variables of capital structure, Current Liabilities to Total Assets, Long Term Liabilities to Total Assets, Total Liabilities to Total Assets, negatively impacts the Earnings Before Interest and Taxes, Return on Assets, Earning Per Share and Net Profit Margin whereas the Price Earnings Ratio shows a negative relationship with Current Liabilities to Total Assets and a positive relationship is found with Long Term Liabilities to Total Assets where the relationship is insignificant with Total Liabilities to Total Assets. The results also indicate that Return on Equity has an insignificant impact on Current Liabilities to Total Assets and Total Liabilities to Total Assets but a positive relationship exists with Long Term Liabilities to Total Assets. These results, in general, lead to the conclusion that capital structure choice is an important determinant of financial performance of companies (Muhammad et al, 2012).

As the studies conducted in Australia and Pakistan, the present study used a time frame of 5 years which is from 2014 to 2018. However, as compared to the study conducted by Muhammad et al. (2012) the present study analysed the data using the cross-sectional regression analysis rather than the exponential generalised least square regression. It is assumed that with cross-sectional regression analysis, the effect of the

determinants on capital structure would be highlighted across the five-year time frame and not only on individual relationship of the variables of the study.

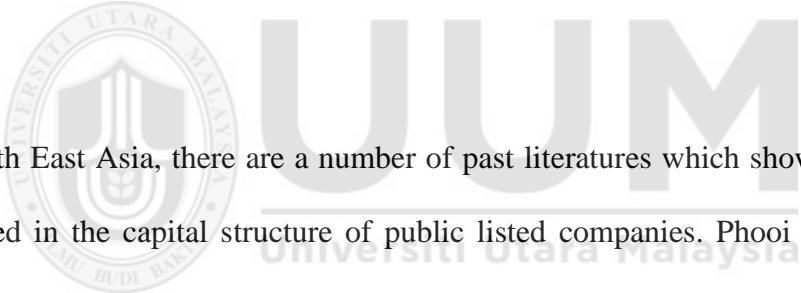
In Bangladesh, there were attempts made to test the influence of debt-equity structure on the value of shares given different sizes, industries and growth opportunities with the companies incorporated in Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE) of Bangladesh. For the robustness of the analysis samples were drawn from the four most dominant sectors of industry i.e. engineering, food & allied, fuel & power, and chemical & pharmaceutical to provide a comparative analysis.

A strong positively correlated association is evident from the empirical findings when stratified by industry (Anup & Suman, 2010). To see the relationship between capital structure and firm value in Bangladesh the research paper considered share price as proxy for value and different ratios for capital structure decision. The interesting finding of this paper suggests that maximizing the wealth of shareholders requires a perfect combination of debt and equity, whereas cost of capital has a negative correlation in this decision and it has to be as minimal as possible. This is also seen that by changing the capital structure composition a company can increase its value in the market. Nonetheless, this could be a significant policy implication for finance managers, because they can utilize debt to form optimal capital structure to maximize the wealth of shareholders (Anup & Suman, 2010).

In China, a research paper examined the influence of managerial ownership on firm performance through capital-structure choices, using a sample of China's civilian-run companies listed on the Chinese stock market between 2002 and 2007. The empirical results demonstrate a nonlinear relationship between managerial ownership and firm value. Managerial ownership drives the capital structure into a nonlinear shape, but in an opposite direction to the effect of managerial ownership on firm value. The results of simultaneous regressions suggest that managerial ownership affects capital structure, which in turn affects firm value (Ruan et al, 2011). It was also found that managerial ownership does not influence firm value significantly when capital structure is added into the equation. Managerial ownership significantly affects capital structure, and capital structure affects corporate performance directly. These results address the influence of managerial shareholding on capital structure, which in turn affects firm value. Furthermore, capital structure is endogenously determined by both firm value and managerial ownership in Chinese civilian-run listed companies between 2002 and 2007 (Ruan et al, 2011).

Two studies on the effect of capital structure were carried out in Nigeria and their findings are as follows. The first study examined the impact of capital structure on the performance of manufacturing companies in Nigeria. The annual financial statements of 15 manufacturing companies listed on the Nigerian Stock Exchange were used for this study which covers a period of five (5) years from 2005-2009. The study concluded that statistically, capital structure is not a major determinant of firm

performance. It recommends that managers of manufacturing companies should exercise caution while choosing the amount of debt to use in their capital structure as it affects their performance negatively (Iorpev & Kwanum, 2012). The second study aimed to provide evidence on the impact of capital structure on a firm's value. The analysis was implemented on a sample of 124 companies quoted on the Nigerian Stock Exchange (NSE) for the year ended 31st December 2007. Similarly, Shubita & Alsawalhah (2012) researched the outcome of profitability on capital structure on 39 industrial companies listed on Amman Stock Exchange during 2004-2009. Their findings indicate there is a significant adverse connection between profitability and debt. They concluded that, as their primary funding alternative, profitable companies rely more on equity.



In South East Asia, there are a number of past literatures which shows determinants involved in the capital structure of public listed companies. Phooi et.al (2017) for example, identified two factors influencing the capital structure which are macroeconomic factor (inflation influence) and firm-specific factors (firm size, profitability, depreciation to total assets and tangibility of assets). The study covered public listed companies in Malaysia, Singapore Stock Exchange, Thailand Stock Exchange and Thailand and Singapore on Bursa Malaysia from 2004 to 2013. Their findings show that all the factors identified has strong impact on the capital structure decisions among companies in all 3 countries.

The first findings indicate that the profitability factor has significant adverse impact for Malaysia and Singapore on capital structure but negligible for Thailand. Secondly, according to Phooi et al.'s study (2017), for all nations, company size has a substantially beneficial impact on capital structure. Third, asset tangibility has considerable beneficial impact on the capital structure, while insignificant for Thailand, in Malaysia and Singapore. Finally, the depreciation of overall assets shows that the capital structure in all three nations is being adversely affected. Similar to the study conducted by Phooi et al. (2017), the present study was aimed at identifying reasonable effect of company's size, among other determinants of capital structure of a company, on the return on asset of a company. Besides size, the present study, however, also focused on determinants such as growth, liquidity, leverage and operating cash flow.

Locally, in Malaysia, on the other hand, there have been a reasonable number of studies that examined the effect of determinants on capital structure of various companies. For example, a study carried out by Md-Yusuf et.al (2013), looked at the companies' size, liquidity, asset tangibility, profitability and growth influences on the capital structure of companies. Her sampling is of the electrical and electronic sectors in Malaysia which was registered in the Bursa Malaysia. However, compared to the present study, this researcher analysed the debt ratio to show the outcome of these factors on the capital structure. Their results indicated that the Malaysian manufacturers of electricity and electronics use less debt on average to sustain their

companies. Furthermore, the findings also showed that size and asset tangibility also have a substantial favorable debt rate connection, while liquidity has a significant adverse leverage relation.

Salim & Yadav (2012) conducted a similar study as Md-Yusuf et.al (2013) whereby, they also looked at the influence of debt on the company's growth and performances with a more in depth approach. The data was obtained from 6 sectors of 237 Malaysian listed companies on the Bursa Malaysia Stock exchange during 1995-2011 and were investigated for their performance measures (comprising return on asset, return on equity, earning per share and Tobin's Q) by means of dependent variable and capital measures (short term debt, long term debt, growth and total debt ratios) by means of independent variable.

Based on Salim & Yadav (2012) study, it was found that the return on equity (ROE), return on asset (ROA) and earning per share (EPS) have an adverse relationship with long term debt (LTD), short-term debt (STD) and total debt (TD), as independent variables. Also found was that there is a positive relationship between the performance and growth for all the sectors. There were also significant beneficial links between short-term debt (STD) and long-term debt (LTD). In their research, the total debt (TD) was found to be significantly negatively related with the performance of the company.

Consequently, studies conducted by Ong & Lee (2013) and Razak et al. (2008) showed the influence of ownership and members towards company's performances. Ong & Lee (2013) examined the roles of independent members and CEO duality on 40 Malaysian plantation companies' performance in Malaysia over the year 2007 and 2010. Their findings show that the independent directors were unable to understand the operations of their firms. Besides that, the effectiveness of dual leadership is more prominent when the board size is bigger and the years of operation is longer. Razak et al. (2008), investigated the influence of an alternative ownership or control structure of corporate governance on 210 government linked companies (GLCs) and Non-GLC in Malaysia from 1995 to 2005. Their results show a momentous influence of government ownership on company growth, leverage, size and non-duality. Rather similar to Ong & Lee's study (2013), the present study selected 40 public-listed plantation companies in Malaysia.

2.4 Research Framework

The present study will be conducted within the following conceptual framework:

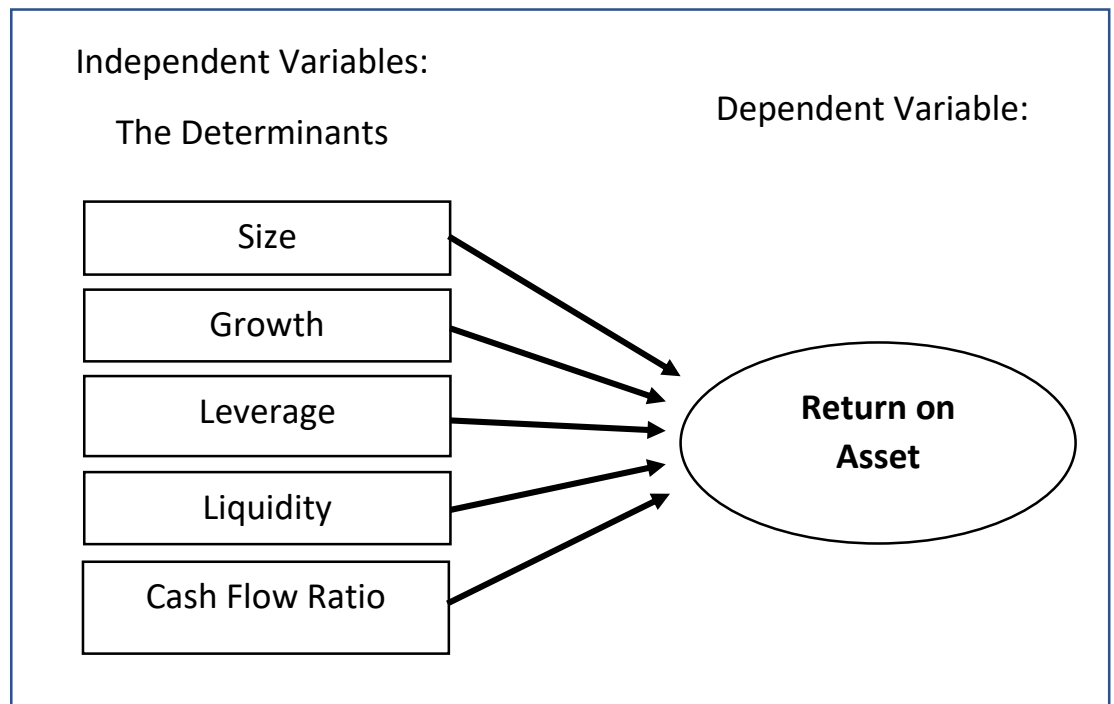


Figure 2.2: The Research Framework

The data for the present study was gathered from the published annual financial reports of 40 public-listed plantation companies such as Batu Kawan Berhad, Boustead Plantation, Cepat Wawasan Group Berhad, Far East Holdings Berhad, Genting Plantations Berhad and Kuala Lumpur Kepong Berhad. The independent data was tabulated by examining the companies' size, growth, leverage, liquidity and cash flow ratio. The data for size was calculated by using $\text{LN}(\text{Total Assets})$ of the companies while data for growth was calculated using the percentage from Revenue of Present Year – Revenue of Previous Year. The data for leverage was calculated by dividing the Total Liability with Total Assets while data for liquidity was calculated by dividing Total Current Asset with Total Current Liability. For the cash flow ratio, data from the

Operating Cash Flow was divided by Total Current Liability while data for the dependent variable which is the return on asset, is calculated by dividing the Net Income with Total Assets.



CHAPTER THREE

METHODOLOGY

3.1 Introduction

Research entails the collection and assembling of relevant data and extracting from that data relevant findings to support or refute an argument or draw valid conclusions (Dreyer, 2010; Cameron & Price, 2009). This section elaborates the data collection process, research process and methodology that was employed in answering the research hypotheses presented in the previous section (Dreyer, 2010). The chapter elaborates the research framework of the study, development of the hypotheses, the research design of the study, operational terms used in the study, sample of the study, descriptive statistics, regression analysis and a summary of the chapter.

3.2 Conceptual Framework

The present study intends to use the financial reports of the selected companies from the plantation sector in Malaysia. The annual reports are from 2014 to 2018 (5 years). The data collected was restricted to this period only.

This study used the multiple regression technique to determine the relationship between the size of the total assets, growth of revenue, liquidity of current ratio,

leverage of debt ratio, operating cash flow ratio with the return on asset. Cross sectional regression analysis was used to determine the relationship between the various determinants and company performance.

3.3 Development of Hypotheses

The present study was conducted to test the following hypothesis:

Firm Size

H₁ – Firm size is hypothesized to be positively related with the Return On Asset of the plantation sector in Malaysia.

Growth

H₂ – Growth is hypothesized to be positively related with the Return On Asset of the companies in the plantation sector in Malaysia.

Leverage

H₃ – Leverage is hypothesized to be positively related with the Return On Asset of the companies in the plantation sector in Malaysia.

Liquidity

H₄ – Liquidity is hypothesized to be positively related with the Return On Asset of the plantation sector in Malaysia.

Operating Cash Flow

H5 – Operating Cash Flow is hypothesized to be positively related with the Return On Asset of the plantation sector in Malaysia.

3.4 Operational Terms

To achieve the objectives of the present study, the following terms were used. Therefore, it is necessary to provide a definition of the operational terms used in the study, such as;

Determinants:

A determinant of something causes it to be of a particular kind or to happen in a particular way. In the present study, determinants refer to factors that controls financially the growth of a company.

Capital structure:

The capital structure theory was pioneered by Modigliani and Miller (1958). In the present study, capital structure refers to the way a company chooses to finance its assets and investments through some combination of equity, debt, internal funds or other related determinants.

Plantation sector:

A plantation sector refers to a large piece of land, especially in a tropical country such as Malaysia, where crops such as palm trees, rubber trees, coffee trees, tea trees, or sugarcanes are grown and harvested for a specific economical purpose.

Size:

It is the speed and extent of growth that is ideal for a specific business company. In our context, we look into the total assets to calculate the firm size. It is measured by using natural log of total asset formula.

Growth:

It is the increase or decrease in a company's sales from one period to the next. It is to measure how fast a business is expanding. In our context, it is calculated by comparing revenue from previous year to revenue of current year and divides the value of it with current year to measure the increase or decrease in the growth of the sales figure.

Leverage:

Leverage refers to how much debt is used to finance the company's operations. Being highly leveraged shows that a company has more debt than the operating cash flow. This brings greater risk which may lead to default or bankruptcy. However, leverage also plays an important role in the growth of the company if the debt is used wisely.

It is the financial measurement that look at how much capital comes in the form of debt (loan) to meet its financial obligations. In our context, leverage is the amount of money borrowed to finance the purchase assets which is calculated as total debt over total assets.

Liquidity:

In our context, current ratio is used as a measure to calculate whether a company has enough resources to meet its short term obligations or those due within one year. It is

calculated by comparing a firm's current asset to its current liabilities.

Operational Cash Flow:

It measures the adequacy of a company's cash generated from operating activities to pay its current liabilities. It is calculated by dividing the cash flow from operations by the company's current liabilities. It is a measure of the number of times a company can pay off current debts with cash generated within the same period. A higher number, greater than one, indicates that a company has generated more cash in a period than what is needed to pay off its current liabilities. An operating cash flow less than one indicate that the firm has not generated enough cash to cover its current liabilities. A low ratio means the firm needs more capital.

Return on Asset:

It is the percentage of how profitable a company's assets are in generating revenue. It indicates the capital intensity of the company; companies that require large initial investments will generally have lower return on assets. It derives from net income over total assets.

3.5 Research Design

The present study was conducted using the data obtained from published annual reports of public-listed plantation companies in the Bursa Malaysia. Data gathered from the annual reports of the companies are used to tabulate various financial values. From the values, the independent and the dependent variables were identified and

examined using correlation and regression analyses. In order to study the relationships between the determinants of the companies' capital structures, the independent variables; size, growth, leverage, liquidity and operating cash flow were analysed to determine the effects on the return on assets of the companies.

3.5.1 Population of Analysis

Population can be defined as individuals, groups, organisations, human products and events and the conditions to which that population is exposed (Rayan, 2008; Welman & Kruger 2005). The population of application for this study is all public-listed plantation companies that are listed on the Bursa Saham Malaysia for the period 2014 – 2018 (five-year period). A total of 40 companies' data was obtained and examined from a period of 5 years which is from year 2014 till 2018. However, data for the year 2014 was only available from 39 companies, since one of the company; Matang Berhad, was not listed in the annual reports of the Bursa Malaysia.

For year 2015, data from 38 companies was used as data of two companies; Matang Berhad was not listed in the annual reports of the Bursa Malaysia. The data for Malpac Holding Berhad for the financial year ending 30th June 2015 was not available. The Company has changed its financial year end from 31 December to 30 June. The financial statements are thus prepared for a period of 18 months, from 1 January 2015 to 30 June 2016. For years 2016, 2017 and 2018, the data was obtained for all the 40 companies. Table 3.1 shows the names of the public-listed plantation companies

selected for the present study.

Table 3.1: List of Public-Listed Plantation Companies used for Sample

NO.	COMPANIES
1	BATU KAWAN BERHAD
2	BOUSTEAD PLANTATION
3	CEPAT WAWASAN GROUP BERHAD
4	DUTALAND BERHAD
5	FAR EAST HOLDINGS BERHAD
6	FELDA GLOBAL VENTURES HOLDINGS BERHAD
7	GENTING PLANTATIONS BERHAD
8	GOLDEN LAND BERHAD
9	GOPENG BERHAD
10	HARN LEN CORPORATION BERHAD
11	IJM PLANTATIONS BERHAD
12	INCH KENNETH KAJANG RUBBER PUBLIC LIMITED COMPANY
13	INNOPRISE PLANTATIONS BERHAD
14	IOI CORPORATION BERHAD
15	JAYA TIASA HOLDINGS BERHAD
16	KIM LOONG RESOURCES BERHAD
17	KLUANG RUBBER COMPANY (MALAYA) BERHAD
18	KRETAM HOLDINGS BERHAD
19	KUALA LUMPUR KEPONG BERHAD
20	KWANTS CORPORATION BERHAD
21	MALPAC HOLDINGS BERHAD
22	MATANG BERHAD
23	MHC PLANTATIONS BERHAD
24	NEGERI SEMBILAN OIL PALMS BERHAD
25	NPC RESOURCES BERHAD
26	PINEHILL PACIFIC BERHAD
27	PLS PLANTATIONS BERHAD
28	RIMBUNAN SAWIT BERHAD
29	RIVERVIEW RUBBER ESTATES BERHAD
30	SARAWAK OIL PALMS BERHAD
31	SARAWAK PLANTATION BERHAD
32	SIME DARBY PLANTATION BERHAD
33	SIN HENG CHAN (MALAYA) BERHAD
34	SUNGEI BAGAN RUBBER COMPANY (MALAYA) BERHAD
35	TA ANN HOLDINGS BERHAD
36	TDM BERHAD
37	TH PLANTATIONS BERHAD
38	TSH RESOURCES BERHAD
39	UNITED MALACCA BERHAD
40	UNITED PLANTATIONS BERHAD

3.5.2 Variable

The unit of study for this study is an individual company listed on Bursa Saham Malaysia for the period of five years from 2014 to 2018. Variables of interest for the purpose of this study are collected on each of these companies. The variables of interest would be the Size of Total Asset, Growth of Revenue, Leverage of Debt Ratio, Liquidity of Current Ratio, Operating Cash Flow and the dependent variable; Return on Asset.

3.6 Data Collection Procedures

For the purpose of this study, the data was collected using secondary data from the annual financial reports of 40 companies under the plantation sector. Data was obtained manually by calculating the revenue, the total assets, the total liability, the total current asset, the total current liability and the cash flow operation. The size for each company was calculated using the natural logarithm of the total assets of the companies. Growth was measured by calculating the percentage of the difference between the present year and the previous year while leverage was calculated by dividing total liability with total assets of the company. Liquidity was calculated by dividing total current asset with total current liability while the operating cash flow was calculated by dividing the cash flow operation with total current liability. The return on asset was calculated by the net income of the company with total asset of the company.

3.7 Analysis of Data

According to Sykes (2003) a regression analysis is a statistical tool that is used for the investigation of relationships between variables where the investigator assembles data on the underlying variables of interest and employs regression to estimate the quantitative effects of the causal variables upon the variable that they influence. As explicitly stated among the study objectives and the research questions of the present study, part of this study sought to establish determinants affecting the capital structure of the public-listed plantation companies.

To effectively and efficiently achieve the objectives of the present study, a cross sectional regression analysis was conducted using the GRETTL statistical package to measure the relationship between the independent variables and the dependent variable. The independent variables used for the analysis were the size, growth, leverage, liquidity and the operating cash flow of the companies. These independent variables were tested against the dependent variable of the study which is the return on asset on the plantation.

A multiple regression model, namely the Pooled OLS model, with a dependent variable and several independent variables (in this case, four) was used to interpret data collected within the research framework. The multiple regression model used to test the relationship between each independent variable with the dependent variable. Based on the research framework of the study, the regression model used is represented

by the following equation:

$$y = b_0 + b_1*X_1 + b_2*X_2 + b_3*X_3 + b_4*X_4 + b_5*X_5$$

where;

y : capital structure
*b*₀ : constant
*b*₁-*b*₅ : beta coefficient of independent variables
*X*₁ : company size
*X*₂ : company growth
*X*₃ : company leverage
*X*₄ : company liquidity
*X*₅ : company operating cash flow

The Durbin-Watson test was used to test the linear regression model used in the study. A Durbin-Watson value between $1.5 < d < 2.5$ shows that there is no autocorrelation among the variables or in the data analysed. This test was used to test the null hypotheses of the study.

3.8 Summary

This chapter described the methods used in the present study from the conceptual framework to the development of hypotheses, operational terms used to avoid any ambiguity to how the research was designed and sampling was established. This also included definition of descriptive statistics and regression analysis used to test the significant impact of dependent (return on asset) on independent variables (size, growth, leverage, liquidity and operating cash flow).

CHAPTER FOUR

FINDINGS

4.0 Introduction

This particular chapter discusses the findings of the study. The chapter departs with a description of the descriptive statistics followed by the quantitative analysis which includes the correlation and the cross-sectional regression analyses. This was followed by the discussions of the results and ends with a summary.

4.1 Descriptive Statistics

The data gathered for the present study consisted of the annual audit reports from listed companies in Bursa Malaysia. In order to tabulate the descriptive statistics from the data gathered from year 2014 to 2018, the yearly data was uploaded to Gretl software and descriptive statistics was generated.

The outcome of the descriptive statistics was then tabulated according to the variables studied, for each year; 2014, 2015, 2016, 2017 and 2018 as presented in table 4.1, table 4.2, table 4.3, table 4.4, table 4.5 and table 4.6.

Table 4.1

Descriptive Statistics of the Variables Selected for year 2014

Summary Statistics, using the observations 1 - 39

Variable	Mean	Median	S.D.	Min	Max
Size (Ln)	14.0	13.9	1.46	9.64	17.7
Growth (percentage)	675%	701%	2380%	-11300%	4370%
Leverage (percentage)	31.1%	36.1%	18.3%	0.542%	66.7%
Liquidity (times)	9.7 times	1.6 times	21.8 times	0.13 times	99.8 times
Operating Cash Flow (OCF) (ratio)	0.609	0.310	1.09	-1.33	4.63
Return On Asset (ROA) (percentage)	3.55%	2.60%	6.22%	-8.14%	32.9%

Table 4.1 shows that the mean of SIZE of the public-listed plantation companies for the year 2014 is at 14.0, while the median is 13.9 with a standard deviation of 1.46. For the year 2014, the mean of GROWTH is tabulated as 675% while the median is 701% with a standard deviation of 2380%. This shows that there is a positive growth in the capital structure of the companies with the maximum growth of 4370%.

On the other hand, the mean of LEVERAGE for year 2014 stands at 31.1% with a median of 36.1% and a standard deviation of 18.3%. There are no big differences in the leverage of the companies. The mean of LIQUIDITY occurrences is 9.7 times with a median of 1.6 times occurrences while the standard deviation stands at 21.8 times. Meanwhile, the mean of OCF for year 2014 is 0.609 with the median of 0.310 and a standard deviation of 1.09. The ROA for year 2014 has a mean of 3.55% with a median of 2.60% while the standard deviation stands at 6.22% which indicates a minimum range of the ROA of the companies.

Table 4.2

Descriptive Statistics of the Variables Selected for year 2015

Summary Statistics, using the observations 1 - 38

Variable	Mean	Median	S.D.	Min	Max
Size (Ln)	14.4	14.2	1.31	11.9	17.9
Growth (percentage)	-4840%	-969%	22100%	-1.36e+003	49700%
Leverage (percentage)	31.9%	34.7%	18.9%	1.19%	70.5%
Liquidity (times)	9.2 times	1.8 times	20.5 times	0.07 times	93.7 times
Operating Cash Flow (OCF) (ratio)	0.736	0.142	3.42	-4.46	20.0
Return On Asset (ROA) (percentage)	82.0%	1.75%	427%	-4.23%	2610%

Table 4.2 shows that the mean of SIZE of the public-listed plantation companies for the year 2015 is at 14.4, while the median is 14.2 with a standard deviation of 1.31. For the year 2015, the mean of GROWTH is tabulated as -4840% while the median is -969% with a standard deviation of 22100%. This shows that there is a positive growth in the capital structure of the companies with the maximum growth of 49700%.

On the other hand, the mean of LEVERAGE for year 2015 stands at 31.9% with a median of 34.7% and a standard deviation of 18.9%. The mean of LIQUIDITY occurrences is 9.2 times with a median of 1.8 times while the standard deviation stands at 20.5 times. Meanwhile, the mean of OCF for year 2015 is 0.736 with the median of 0.142 and a standard deviation of 3.42. The ROA for year 2015 has a mean of 82% with a median of 1.75% while the standard deviation stands at 427%.

Table 4.3

Descriptive Statistics of the Variables Selected for year 2016

Summary Statistics, using the observations 1 - 40

Variable	Mean	Median	S.D.	Min	Max
Size (Ln)	14.3	14.1	1.39	11.9	18.0
Growth (percentage)	140%	336%	1830%	-7430%	2650%
Leverage (percentage)	29.6%	31.2%	19.5%	1.36%	66.4%
Liquidity (times)	7.8 times	1.71 times	16.7 times	0.03 times	66 times
Operating Cash Flow (OCF) (ratio)	0.287	0.238	0.789	-1.64	3.23
Return On Asset (ROA) (percentage)	3.08%	1.84%	5.03%	-4.73%	21.1%

Table 4.3 shows that the mean of SIZE of the public-listed plantation companies for the year 2016 is at 14.3, while the median is 14.1 with a standard deviation of 1.39. For the year 2016, the mean of GROWTH is tabulated as 140% while the median is 336% with a standard deviation of 1830%. This shows that there is a positive growth in the capital structure of the companies with the maximum growth of 2650%.

On the other hand, the mean of LEVERAGE for year 2016 stands at 29.6% with a median of 31.2% and a standard deviation of 19.5%. The mean of LIQUIDITY occurrences is 7.8 times with a median of 1.71 times occurrences while the standard deviation stands at 16.7 times occurrences. The mean of OCF for year 2016 is 0.287 with the median of 0.238 and a standard deviation of 0.789. The ROA for year 2016 has a mean of 3.08% with a median of 1.84% while the standard deviation stands at 5.03%.

Table 4.4

Descriptive Statistics of the Variables Selected for year 2017

Summary Statistics, using the observations 1 - 40

Variable	Mean	Median	S.D.	Min	Max
Size (Ln)	14.3	14.1	1.37	12.1	18.0
Growth (percentage)	1460%	1680%	2650%	-10800%	8150%
Leverage (percentage)	29.2%	27.1%	19.7%	1.16%	70.1%
Liquidity (times)	9.7 times	1.8 times	21.9 times	0.03 times	108 times
Operating Cash Flow (OCF) (ratio)	0.441	0.382	1.02	-2.34	3.47
Return On Asset (ROA) (percentage)	3.01%	1.76%	5.45%	-10.6%	23.2%

Table 4.4 shows that the mean of SIZE of the public-listed plantation companies for the year 2017 is at 14.3, while the median is 14.1 with a standard deviation of 1.37. For the year 2017, the mean of GROWTH is tabulated as 1460% while the median is 1680% with a standard deviation of 2650%. This shows that there is a positive growth in the capital structure of the companies with the maximum growth of 8150%.

On the other hand, the mean of LEVERAGE for year 2017 stands at 29.2% with a median of 27.1% and a standard deviation of 19.7%. The mean of LIQUIDITY occurrences is 9.7 times with a median of 1.8 times of occurrences while the standard deviation stands at 21.9 times of occurrences. Meanwhile, the mean of OCF for year 2017 is 0.441 with the median of 0.382 and a standard deviation of 1.02. The ROA for year 2017 has a mean of 3.01% with a median of 1.76% while the standard deviation stands at 5.45%.

Table 4.5

Descriptive Statistics of the Variables Selected for year 2018

Summary Statistics, using the observations 1 - 40					
Variable	Mean	Median	S.D.	Min	Max
Size (Ln)	14.2	14.0	1.38	12.2	17.0
Growth (percentage)	-4580%	-1360%	12900%	-66900%.	4450%
Leverage (percentage)	33%	35%	23%	1.3%	85%
Liquidity (times)	7.7 times	1.9 times	13.7 times	0.02 times	51.5 times
Operating Cash Flow (OCF) (ratio)	0.6	0.3	1.5	-2.3	7.2
Return On Asset (ROA) (percentage)	0.1%	0.9%	6.8%	-23%	18%

Table 4.5 shows that the mean of SIZE of the public-listed plantation companies for the year 2018 is at 14.2, while the median is 14.0 with a standard deviation of 1.38. For the year 2018, the mean of GROWTH is tabulated as -4580% while the median is -1360% with a standard deviation of 12900%. This shows that there is a positive growth in the capital structure of the companies with the maximum growth of 4450%.

On the other hand, the mean of LEVERAGE for year 2018 stands at 33% with a median of 35% and a standard deviation of 23%. The mean of LIQUIDITY occurrences is 7.7 times with a median of 1.9 times of occurrences while the standard deviation stands at 13.7 times occurrences. The mean of OCF for year 2018 is 0.6 with the median of 0.3 and a standard deviation of 1.5. The ROA for year 2018 has a mean of 0.1% with a median of 0.9% while the standard deviation stands at 6.8%.

4.2 Correlation Analysis

Table 4.6: Correlation coefficients year 2014

SIZE	GROWTH	LEVERAGE	LIQUIDITY	OPERATING CASH FLOW (OCF)	RETURN ON ASSET	
	0.2020	0.1525	-0.1991	0.0437	0.1679	SIZE
		0.1301	0.1231	0.0511	0.1079	GROWTH
			-0.6042	-0.0930	0.0265	LEVERAGE
				-0.1332	-0.0372	LIQUIDITY
					0.5900	OPERATING CASH FLOW(OCF)
						RETURN ON ASSET (ROA)

Table 4.6 shows the correlation between the variables in this study; Size, Growth, Leverage, Liquidity, Operating Cash Flow (OCF) and Return On Asset (ROA) for year 2014. Overall, it was found that firm size, growth, leverage and OCF have positive correlation with ROA with values of 0.1679, 0.1079, 0.0265 and 0.5900. However, liquidity has negative correlation with ROA. The critical value is at 5% (two-tailed) with a value of 0.3160 when n is equal to 39.

Liquidity reported a negative correlation with size and leverage, at -0.1991 and -0.6042 respectively and a positive correlation with growth at 0.1231. For OCF, it shows negative correlation with leverage and liquidity with values of -0.0930 and -0.1332 respectively. The result indicates that all variables are not highly correlated, ranging from -0.6042 to 0.2020.

Table 4.7: Correlation coefficients year 2015

SIZE	GROWTH	LEVERAGE	LIQUIDITY	OPERATING CASH FLOW (OCF)	RETURN ON ASSET	
	0.1130	0.3624	-0.2127	0.2102	-0.2785	SIZE
		-0.0263	-0.1014	-0.1299	-0.1232	GROWTH
			-0.5282	0.2473	-0.2103	LEVERAGE
				-0.5369	0.5449	LIQUIDITY
					-0.9543	OPERATING CASH FLOW(OCF)
						RETURN ON ASSET (ROA)

Table 4.7 shows the correlation between the variables in this study; Size, Growth, Leverage, Liquidity, Operating Cash Flow (OCF) and Return on Asset (ROA). Overall, it was found that liquidity have positive correlation with ROA with values of 0.5449. However, size, growth, leverage, OCF have negative correlation with ROA. The critical value is at 5% (two-tailed) with a value of 0.3202 when n is equal to 38.

Liquidity reported a negative correlation with size, growth and leverage, at -0.2127, -0.1014 and -0.5282 respectively. Growth and leverage reported a positive correlation with size at 0.1130 and 0.3624 respectively. OCF reported a positive correlation with size and leverage at 0.2102 and 0.2473 respectively. The result indicates that all variables are not highly correlated, ranging from -0.5369 to 0.3624.

Table 4.8: Correlation coefficients year 2016

SIZE	GROWTH	LEVERAGE	LIQUIDITY	OPERATING CASH FLOW (OCF)	RETURN ON ASSET	
	0.1417	0.4818	-0.1833	0.1169	0.1340	SIZE
		0.0489	-0.3585	0.3979	0.0286	GROWTH
			-0.3608	0.1958	-0.0327	LEVERAGE
				-0.9511	0.2003	LIQUIDITY
					-0.2136	OPERATING CASH FLOW(OCF)
						RETURN ON ASSET (ROA)

Table 4.8 shows the correlation between the variables in this study; Size, Growth, Leverage, Liquidity, Operating Cash Flow (OCF) and Return on Asset (ROA). Overall, it was found that firm size, growth, and liquidity have positive correlation with ROA with values of 0.1340, 0.0286, and 0.2003. However, leverage and OCF has negative correlation with ROA with the value of -0.0327 and -0.2136. The critical value is at 5% (two-tailed) with a value of 0.3120 when n is equal to 40.

Liquidity reported a negative correlation with size, growth and leverage at -0.1833, -0.3585 and -0.3608 respectively. Growth revealed a positive correlation at 0.1417 with size. For OCF, it shows a positive correlation for size, growth and leverage at 0.1169, 0.3979, 0.1958 respectively and negative correlation for liquidity at -0.9511. The result indicates that all variables are not highly correlated, ranging from -0.9511 to 0.4818.

Table 4.9: Correlation coefficients year 2017

SIZE	GROWTH	LEVERAGE	LIQUIDITY	OPERATING CASH FLOW (OCF)	RETURN ON ASSET	
	-0.0845	0.2602	-0.2421	0.1179	0.2635	SIZE
		-0.0488	-0.0249	0.2161	-0.0795	GROWTH
			-0.5111	-0.0687	-0.2898	LEVERAGE
				-0.2176	-0.1745	LIQUIDITY
					0.4357	OPERATING CASH FLOW(OCF)
						RETURN ON ASSET (ROA)

Table 4.9 shows the correlation between the variables in this study; Size, Growth, Leverage, Liquidity, Operating Cash Flow (OCF) and Return on Asset (ROA). Overall, it was found that size and OCF have positive correlation with ROA with values of 0.2635 and 0.4357. However, growth, leverage, liquidity, has negative correlation with ROA. The critical value is at 5% (two-tailed) with a value of 0.3120 when n is equal to 40.

Liquidity and growth reported a negative correlation with size at -0.2421 and -0.0845 respectively. OCF revealed a negative correlation with leverage and liquidity at -0.0687 and -0.2176 respectively. For leverage, it shows negative correlation with growth at -0.0488. The result indicates that all variables are not highly correlated, ranging from -0.5111 to 0.2602.

Table 4.10: Correlation coefficients year 2018

SIZE	GROWTH	LEVERAGE	LIQUIDITY	OPERATING CASH FLOW (OCF)	RETURN ON ASSET	
	0.2477	0.2076	-0.2956	-0.1688	0.2374	SIZE
		0.2147	-0.1020	0.1640	0.0666	GROWTH
			-0.5761	-0.2726	-0.4085	LEVERAGE
				0.1057	0.0762	LIQUIDITY
					0.3087	OPERATING CASH FLOW(OCF)
						RETURN ON ASSET (ROA)

Table 4.10 shows the correlation between the variables in this study; Size, Growth, Leverage, Liquidity, Operating Cash Flow (OCF) and Return on Asset (ROA). Overall, it was found that firm size, growth, liquidity and OCF have positive correlation with ROA. However, leverage has negative correlation with ROA. The critical value is at 5% (two-tailed) with a value of 0.3120 when n is equal to 40.

Liquidity reported a negative correlation with size, growth and leverage, at -0.2956, -0.1020 and -0.5761 respectively. Growth revealed a positive correlation at 0.1640 for OCF and 0.1020, for liquidity. OCF shows a negative correlation with size and leverage at -0.1688 and -0.2726 respectively. The result indicates that all variables are not highly correlated, ranging from -0.5761 to 0.2477.

4.3 Cross-sectional Regression Analysis

Cross-sectional regression analysis was conducted to test the hypotheses of the study.

Table 4.11: Cross-sectional Regression Analysis 2014

	<i>Coefficient</i>	<i>Std. Error</i>	<i>p-value</i>
Const	-0.0984561	0.0896138	0.2799
SIZE	0.00638557	0.00607708	0.3010
GROWTH	5.63930e-06	0.000384747	0.9884
LEVERAGE	0.0571749	0.0619350	0.3626
LIQUIDITY	0.000506043	0.000532384	0.3488
OPERATING CASH FLOW	0.0356461	0.00811870	0.0001
Mean dependent var	0.035460	S.D. dependent var	0.062218
Sum squared resid	0.089638	S.E. of regression	0.052118
R-squared	0.390640	Adjusted R-squared	0.298313
		P-value(F)	0.004413
		Durbin-Watson	1.785067

Table 4.11 presents the results of cross-sectional regression for the YEAR 2014 between Return on Asset (ROA) as the dependent variable and the independent variables, namely size, growth, leverage, liquidity and operating cash flow for public-listed plantation companies in Malaysia for the period of 2014 to 2018. Excluding the constant, the p-value was highest for variable 2 (GROWTH) at 0.9884. Meanwhile, it was found that SIZE has no significant relationship with ROA with a p-value of 0.3010 which is higher than 0.10. It also shows that there is no significant relationship between ROA and LEVERAGE with a p-value of 0.3626. There is also no significant relationship between ROA and LIQUIDITY with a p-value of 0.3488. Operating Cash Flow (OCF) indicates a p-value of 0.0001 which indicates that there is a significant relationship between OCF and Return on Asset in 2014. The F test statistic value of

4.2310 ($p\text{-value} > 0.001$) shows the overall Pooled OLS model is not significant and is inadequately scattered. In addition to that, the Durbin-Watson statistic is 1.7851 indicating the absence of auto correlation problem with the data used in the regression model.

Table 4.12: Cross-sectional Regression Analysis 2015

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
Const	9.76733	8.05739	1.212	0.2343
SIZE	-0.688717	0.578169	-1.191	0.2423
GROWTH	0.00206030	0.00912047	0.2259	0.8227
LEVERAGE	1.11636	5.03042	0.2219	0.8258
LIQUIDITY	0.0691231	0.0499371	1.384	0.1759
OPERATING CASH FLOW	0.0680575	0.603051	0.1129	0.9109
Mean dependent var	0.819915	S.D. dependent var	4.266037	
Sum squared resid	565.7420	S.E. of regression	4.204692	
R-squared	0.159829	Adjusted R-squared	0.028553	
		P-value(F)	0.323551	
		Durbin-Watson	2.020251	

Table 4.12 presents the results of cross-sectional regression for the YEAR 2015. The analysis indicates that there is no significant relationship between all the independent variables with the dependent variable. Excluding the constant, p-value was highest for variable 5 (OPERATING CASH FLOW) with a p-value of 0.9109. Meanwhile, SIZE has a p-value of 0.2423. LEVERAGE has a p-value of 0.8258 while LIQUIDITY has a p-value of 0.1759. GROWTH indicates a p-value of 0.8227. The F test statistic value of 1.2175 ($p\text{-value} > 0.001$) shows the overall Pooled OLS model is not significant and is inadequately scattered. In addition to that, the Durbin-Watson statistic is 2.0203 indicating the absence of auto correlation problem with the data used in regression

model.

Table 4.13: Cross-sectional Regression Analysis 2016

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
Const	-0.0260200	0.0959377	-0.2712	0.7879
SIZE	0.00522518	0.00698486	0.7481	0.4596
GROWTH	0.000238055	0.000488083	0.4877	0.6289
LEVERAGE	-0.0494885	0.0572000	-0.8652	0.3930
LIQUIDITY	-0.000528673	0.000656273	-0.8056	0.4261
OPERATING CASH FLOW	0.00227468	0.0118597	0.1918	0.8490
Mean dependent var	0.030846	S.D. dependent var	0.050349	
Sum squared resid	0.093243	S.E. of regression	0.052368	
R-squared	0.056881	Adjusted R-squared	-0.081813	
		P-value(F)	0.838377	
		Durbin-Watson	1.802070	

Table 4.13 presents the results of cross-sectional regression for the YEAR 2016 between ROA as the dependent variable and the independent variables, namely size, growth, leverage, liquidity and operating cash flow. Similar to year 2015, the analysis for year 2015 indicates that there is no significant relationship between the variables of the study. Excluding the constant, p-value was highest for variable 5 (OPERATING CASH FLOW) with a p-value of 0.8490. Meanwhile, SIZE has a p-value of 0.4596 while LEVERAGE has a p-value of 0.3930. There is also no significant relationship between ROA and LIQUIDITY which shows a p-value of 0.4261. GROWTH indicates a p-value of 0.6289. The F test statistic value of 0.4101 (p-value>0.001) shows the overall Pooled OLS model is not significant and is inadequately scattered. In addition to that, the Durbin-Watson statistic is 1.8021 indicating the absence of auto correlation problem with the data used in regression model.

Table 4.14: Cross-sectional Regression Analysis 2017

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
Const	-0.0778249	0.0780596	-0.9970	0.3258
SIZE	0.0105934	0.00544753	1.945	0.0601
GROWTH	-0.000333941	0.000276002	-1.210	0.2347
LEVERAGE	-0.136006	0.0434753	-3.128	0.0036
LIQUIDITY	-0.000724768	0.000395530	-1.832	0.0757
OPERATING CASH FLOW	0.0182415	0.00749121	2.435	0.0203
Mean dependent var	0.030089	S.D. dependent var		0.054497
Sum squared resid	0.066501	S.E. of regression		0.044226
R-squared	0.425864	Adjusted R-squared		0.341433
		P-value(F)		0.001456
		Durbin-Watson		2.090533

Table 4.14 presents the results of cross-sectional regression for the YEAR 2017. The analysis for year 2017 shows that there is significant relationship between the independent variables; SIZE, LEVERAGE, LIQUIDITY, OPERATING CASH FLOW and the dependent variable; RETURN ON ASSET (ROA). However, for the year 2017, there is no significant relationship between GROWTH and ROA. Excluding the constant, p-value was highest for variable 2 (GROWTH) with a p-value of 0.2347. Meanwhile, SIZE has a significant positive relationship with ROA with a p-value of 0.0601. It also shows that there is a significant positive relationship between ROA and LEVERAGE with a p-value of 0.0036. There is also a significant positive relationship between ROA and LIQUIDITY with a p-value of 0.0757. The F test statistic value of 5.0389 (p-value>0.001) shows the overall Pooled OLS model is significant and is adequately scattered. In addition to that, the Durbin-Watson statistic is 2.0905 indicating the absence of auto correlation problem with the data used in regression model.

Table 4.15: Cross-sectional Regression Analysis 2018

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
Const	-0.187071	0.115839	-1.615	0.1156
SIZE	0.0165492	0.00759001	2.180	0.0362
GROWTH	2.07113e-05	8.04751e-05	0.2574	0.7984
LEVERAGE	-0.150135	0.0546871	-2.745	0.0096
LIQUIDITY	-0.000672194	0.000879869	-0.7640	0.4502
OPERATING CASH FLOW	0.0111430	0.00714609	1.559	0.1282
Mean dependent var	0.000651	S.D. dependent var		0.068696
Sum squared resid	0.120039	S.E. of regression		0.059418
R-squared	0.347778	Adjusted R-squared		0.251863
		P-value(F)		0.009787
		Durbin-Watson		2.306730

Table 4.15 presents the results of cross-sectional regression for the YEAR 2018 which indicates that there is significant relationship between the independent variables; SIZE, LEVERAGE and the dependent variable; RETURN ON ASSET (ROA). However, there is no significant relationship between GROWTH, LIQUIDITY and OPERATING CASH FLOW and ROA. Excluding the constant, p-value was highest for variable 2 (GROWTH) with a p-value of 0.7984. Meanwhile, SIZE has a significant positive relationship with ROA with a p-value of 0.0362. It also shows that there is a significant positive relationship between ROA and LEVERAGE with a p-value of 0.0096. However, there is no significant relationship between ROA and LIQUIDITY with a p-value of 0.4502 and between ROA and OPERATING CASH FLOW which has a p-value of 0.1282. The F test statistic value of 3.6259 (p-value>0.001) shows the overall Pooled OLS model is significant and is adequately scattered. In addition to that, the Durbin-Watson statistic is 2.3067 indicating the absence of auto correlation problem with the data used in regression model.

4.4 Results and Findings

The findings of this research reveal that there is a mixed conclusion to the relationship between the dependent variable and independent variable. The result reflects that return on asset (ROA) of a company is indeed dependent on some, if not all, the determinants of the capital structure such as the size of a firm, the growth index, the leverage, the liquidity and the operating cash flow (OCF). Therefore, the main objective, which is to analyse the determinants effecting the capital structure of the public-listed plantation companies in Malaysia, has been answered.

The correlation coefficients analyses revealed the extent to which size, growth, leverage, leverage and OCF have on the ROA. Table 4.16 shows the summarised results of the correlation and the cross-sectional regression analyses conducted on the data collected for the present study.

Table 4.16: Summary of the Correlation and Cross-sectional Regression Analyses

YEAR	CORRELATION ANALYSIS	CROSS-SECTIONAL REGRESSION ANALYSIS	REMARK
2014	Positive - Size, Growth, Leverage, OCF Negative - Liquidity	Significant – OCF Non-Significant – Size, Growth, Leverage, Liquidity	Not highly correlated
2015	Positive – Liquidity Negative – Size, Growth, Leverage, OCF	Significant – None Non-Significant – Size, Growth, Leverage, Liquidity, OCF	Not highly correlated
2016	Positive – Size, Growth, Liquidity Negative – Leverage, OCF	Significant – None Non-Significant – Size, Growth, Leverage, Liquidity, OCF	Not highly correlated

2017	Positive – Size, OCF Negative – Growth, Leverage , Liquidity	Significant – Size, Leverage, Liquidity, OCF Non-Significant - Growth	Not highly correlated
2018	Positive – Size, Growth, Liquidity, OCF Negative - Leverage	Significant – Size, Leverage Non-Significant – Growth, Liquidity, OCF	Not highly correlated

For the correlation analysis, it was found that overall, throughout the period of five years, from 2014 till 2018, the plantation companies have experienced a mixed impact of the determinants of the capital structures. However, as seen in table 4.16, it was found that only SIZE has shown an almost positive correlation throughout the period under study except for year 2015 where SIZE shows a negative correlation. The rest of the determinants show mixed correlations with the ROA of the companies, during the period under study.

For the cross-sectional regression analysis, the results show that there is significant influence of most of the determinants during three years; 2014, 2017 and 2018 whereas during 2015 and 2016, there is non-significant influence of the determinants of the capital structures of the companies.

4.5 Conclusion

This chapter discusses the findings based on descriptive statistic, correlation analysis and the cross-sectional regression analysis. Finally, it summarises the hypotheses tested in the study, on the independent variables and the dependent variables. From the

data gathered over the five years; 2014 to 2018, the findings of the correlation coefficients analysis conducted, shows that there are significantly positive relationships between three out of the five independent variables, namely; SIZE, LEVERAGE and OPERATING CASH FLOW with the dependent variable, namely ROA. Meanwhile, two independent variables, namely; GROWTH and LIQUIDITY were found to have no significant relationships between ROA.



CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter summarises the findings of this research on the determinants of capital structure affecting return on asset of public-listed plantation companies in Malaysia from year 2014 to 2018. This chapter provides summary of the major findings, implications of the study, recommendation for future research and concluding remarks. Finally, recommendations for further studies are also provided.

5.1 Summary of Findings

This study analyses determinants of capital structure affecting the return on asset of public-listed companies in the plantation sector in Malaysia for a period of five years, from 2014 to 2018. For this purpose, a total of 40 public-listed companies from the plantation sector are taken into consideration. In order to analyse the relationships between the independent variables of the study, namely; SIZE, GROWTH, LEVERAGE, LIQUIDITY and OPERATING CASH FLOW (OCF), and the dependent variable of the study, namely; RETURN ON ASSET (ROA) a correlation analysis was conducted for each individual data gathered from each year. The purpose of doing this is to examine whether there is any positive or negative relationship between the variables of the study. The findings, as showed in Chapter Four of the

thesis, highlighted mixed relationships between the variables over the duration of the five years. For example, in year 2014, the correlation analysis shows that there are positive relationships between SIZE, GROWTH, LEVERAGE and OCF with the ROA while LIQUIDITY has a negative relationship with the ROA. On the other hand, in year 2015, only LIQUIDITY shows a positive relationship with the ROA while SIZE, GROWTH, LEVERAGE AND OCF indicated negative relationships with the ROA.

In year 2016, it was found that SIZE, GROWTH and LIQUIDITY have positive relationships with the ROA while LEVERAGE and OCF indicated negative relationships with the ROA of the companies. In year 2017, only SIZE and OCF have positive relationships with the ROA of the companies while GROWTH, LEVERAGE and LIQUIDITY indicated negative relationships with the ROA of the companies. In year 2018, it was found that SIZE, GROWTH, LIQUIDITY and OCF have positive relationships with the ROA while LEVERAGE indicates a negative relationship with the ROA of the companies.

In order to strengthen the outcome of the correlation coefficients analysis, a cross-sectional regression analysis was conducted on the variables of the study for each individual year. Overall, as discussed in section 4.4 of Chapter Four of the thesis, the cross-sectional regression analysis conducted on the data gathered shows that there are significantly mixed relationships between three of the independent variables and the

dependent variable tested in the study, namely; SIZE, GROWTH, LEVERAGE, LIQUIDITY, OCF and ROA.

The findings of the present study can be concluded as consistent with the results of previous studies on the relationship between firm size and profitability conducted by Lim (2013) and Zaid et al. (2014) in the construction sector. Other studies specifically in size affecting profitability in other sectors supporting this finding are Dogan (2013), Sinthupundaja and Chiadamrong (2015) and Ilaboya and Ohiokha (2016). However, the present study has significantly shown the relationships between the variables according to individual years, ranging from 2014 to 2018 rather than conducting an overall general panel regression analysis on the variables. This study is thus found to have filled the gap of analysing variables using the cross-sectional regression analysis which many previous studies lacked.

The results of the present study indicate that from SIZE measured by the ROA shows mostly positive relationships on the ROA of the companies. This indicates that the bigger the size of a company, the higher the ROA of the company. An asset in a company is a resource with economic value with the expectation that it will provide continuous cash flow, a good return in the future and be easily converted to cash when necessary. Therefore, this will directly affect the profitability gained by the company.

This finding is also consistent with the results of similar and previous studies on the relationship between firm size and profitability conducted by Latif et al. (2013) and Yoo and Kim (2015). In other industries, the consistency can be observed in the studies of Ammar et al. (2003), Samua (2005), Enqvist et al. (2014), Kartikasari and Merianti (2016) and Koralun-Bereznicka (2016).

5.2 Implications of the Study

From the correlation analysis and the cross-sectional regression analysis, it was found that the Return on Asset (ROA) is vital in determining the capital structure of a company. However, there are limited studies on analysis of ROA available for reference for the plantation sector. Hence, this study focuses on the analysis of determinants affecting the capital structure of the public-listed plantation companies in Malaysia. The period of study is five years from 2014 to 2018 which is found to be suitable to analyse the relationships between the selected variables of the study. The time frame was chosen in consideration that very few studies were done post global financial crisis for the plantation sector in Malaysia.

The results from this research would have implications for future researchers, academicians, company executives, financial professionals, economists, consultants, policy maker and the property and construction boards. Future researchers can use the findings from the present study as reference to further investigate the subject matter to make it more relevant to current era and situation. Plantation sector is developing

dynamically in Malaysia and is responsive to forces like new government and industry policies, political, social and present economic conditions.

5.3 Recommendation for Future Research

As this study focuses strictly on the plantation sector in Malaysia, it does not include any analysis between sub-sectors of other sectors in the nation. Altogether, 40 companies were selected from the Bursa Malaysia. However, for some of the years, data of two companies were found to be missing. Since this research is limited to the Malaysian public-listed plantation companies, the results may not accurately representative of private firms of the same sectors in Malaysia. As it is geographically concentrated, the results may not be representative of similar sectors in other countries.

In order to choose a better and more accurate sampling technique, future researchers may want to consider the characteristics or behaviour and social interactions that are relevant to the subject matter. Ideally, in order to provide a more holistic result, non-financial variables have to be considered and studied as well. It is widely known that financial returns alone would not bring profits to a company without its human capital and the system that binds both the software and hardware of the running of an organisation. It is also highly recommended to do research over longer period of time. More observations will result in more information which will provide more accuracy to the study.

5.4 Concluding Remarks

The sample of the study consists of public-listed plantation companies in Malaysia. The data were gathered based on secondary data collected from the Bursa and related websites, with five-year period of study from 2014 to 2018. Data collected were tested using correlation analysis and the cross-sectional regression analysis using the Gretl software.

Generally, the plantation companies are highly productive in Malaysia. These companies carried out mega projects of growth and expansion works that take years to complete. It is interesting to note that it is the norm to see fluctuations in their income statements to the extent of having very low sale or none at all during the work-in-progress stages. However, these does not affect the growth and liquidity of the companies. Strong growth in revenue, as a result from market penetration in terms of market power and experience, would produce higher profits in the form of return on assets to the companies. Depending on availability of data, further studies on return on asset within similar sectors may include other non-financial variables with longer time frame should be conducted to produce more accurate and generalisable results.

This chapter summarizes the overall study in this research and is expected to provide a platform for future researchers on this subject matter. It is also expected to contribute to the knowledge of determinants of the capital structures of plantation companies in Malaysia.

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